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Segroves

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(54) **ELONGATED OBJECT LABEL APPLICATOR GUIDE**

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B65C 9/18	(2006.01)
B65C 9/42	(2006.01)

(52) **U.S. Cl.**

CPC ***B65C 3/02*** (2013.01); ***B65C 9/18*** (2013.01); ***B65C 9/42*** (2013.01)

(58) **Field of Classification Search**

CPC B65C 9/18; B65C 3/02; B65C 9/42

See application file for complete search history.

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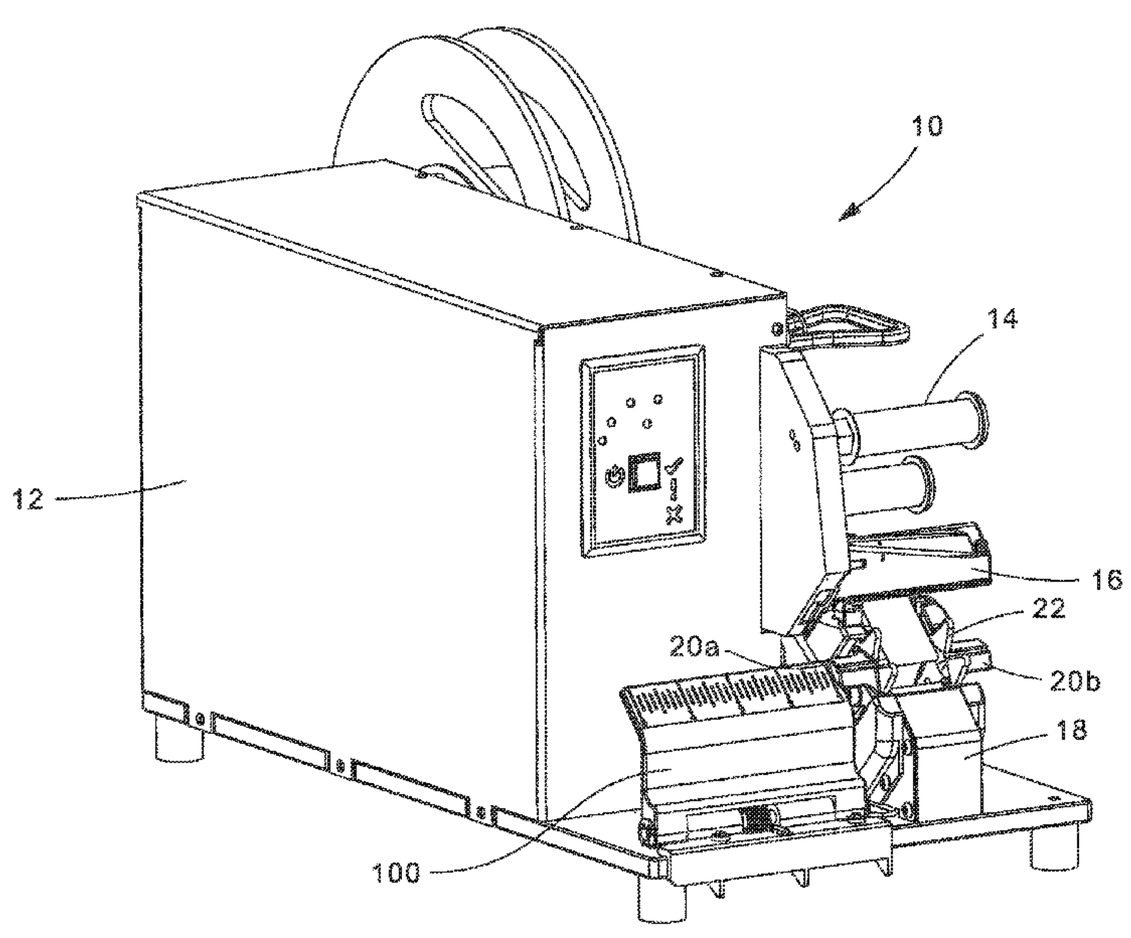
(57) **ABSTRACT**

A label applicator guide including a base configured to be attached to an elongated object label applicator, and a controller including a first support extending from the base and a second support extending from the first support such that the first support is configured to be planar with a portion of the wrapping mechanism. The controller is moveably secured to the base through a first knuckle of the controller pivotably connected to a second knuckle of the base, with a pin extending through the first knuckle and second knuckle.

8 Claims, 7 Drawing Sheets



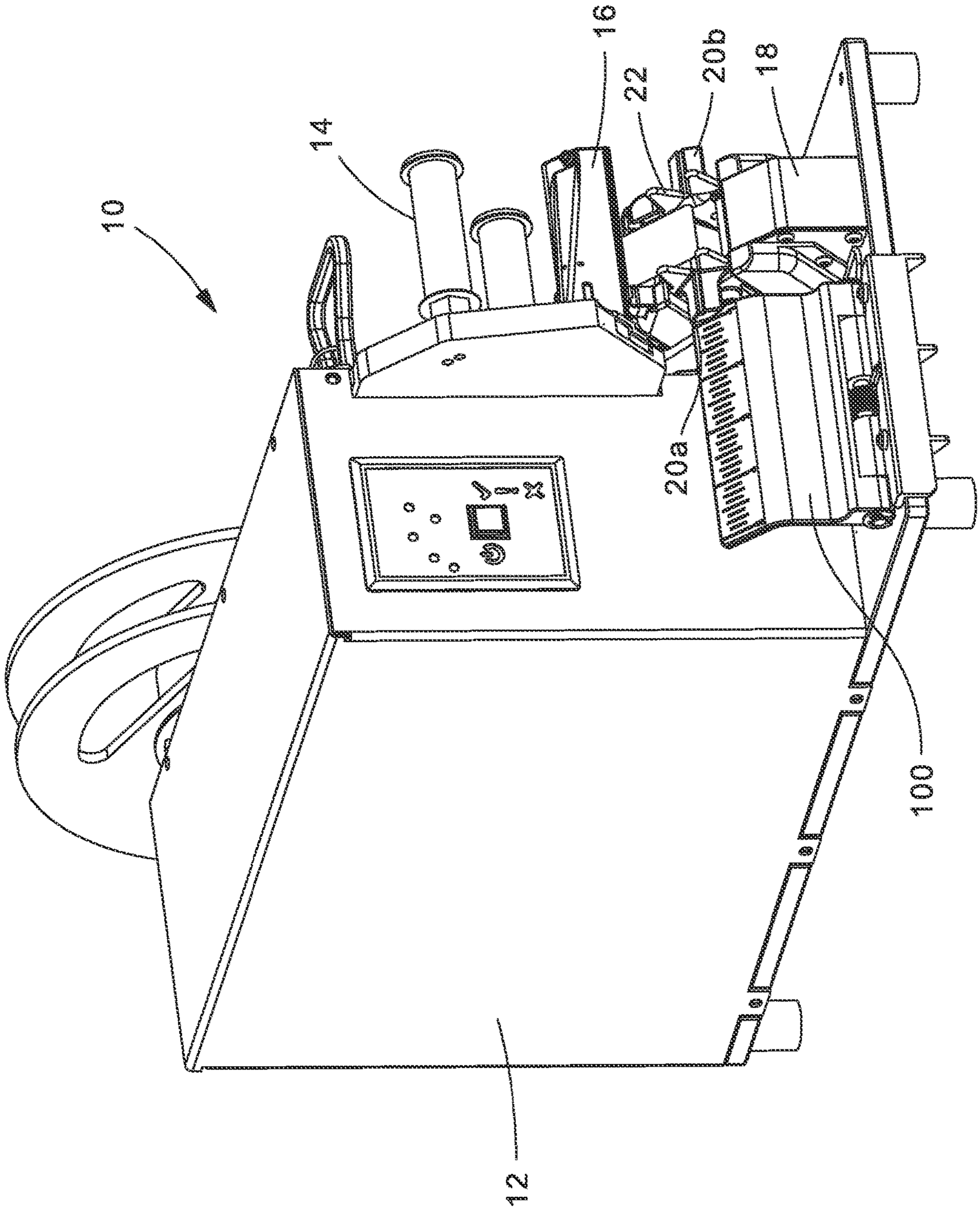


Fig. 1

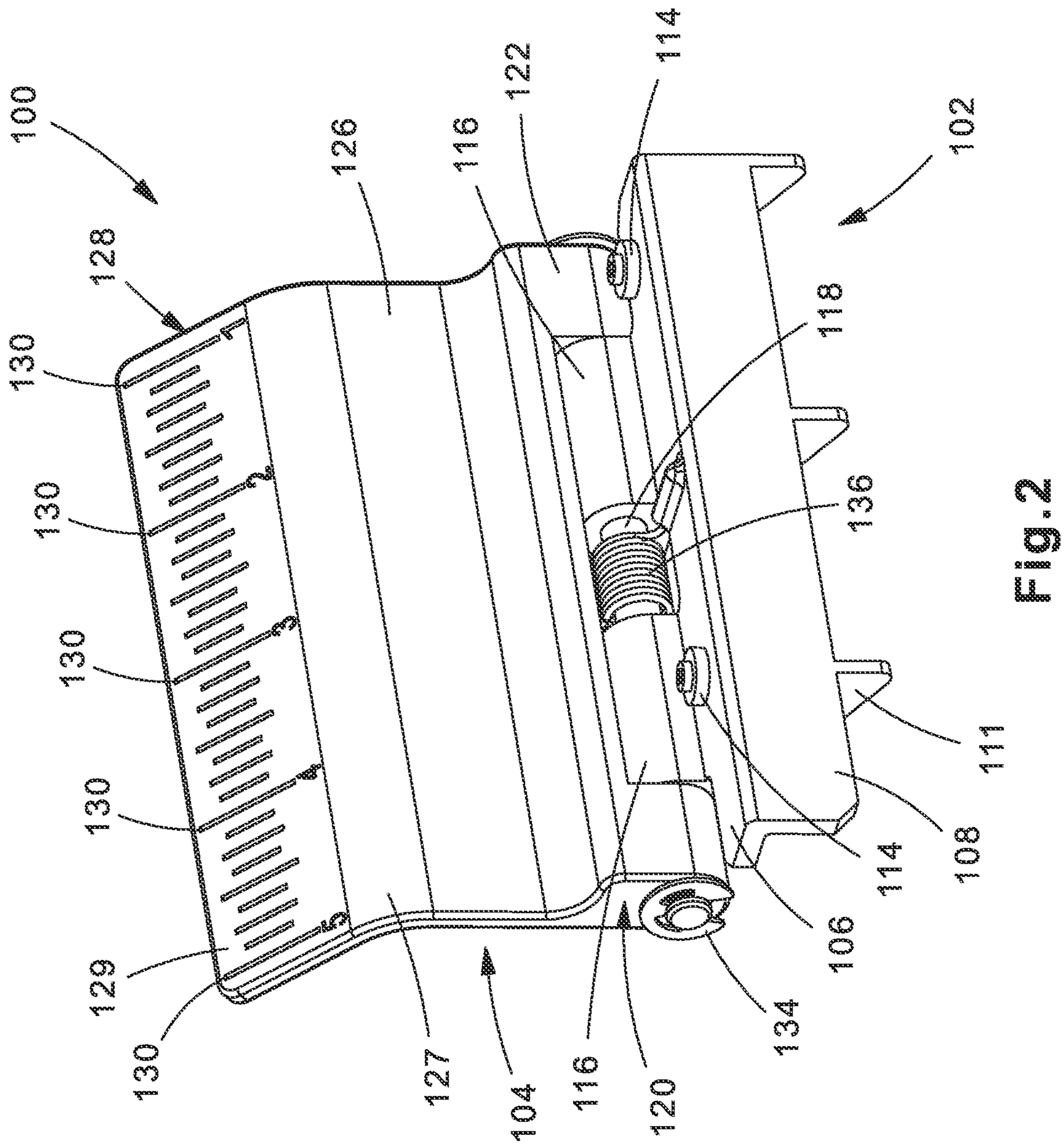

100
102
104
106
108
111
114
116
118
120
122
126
127
128
129
130
134
136

Fig.2

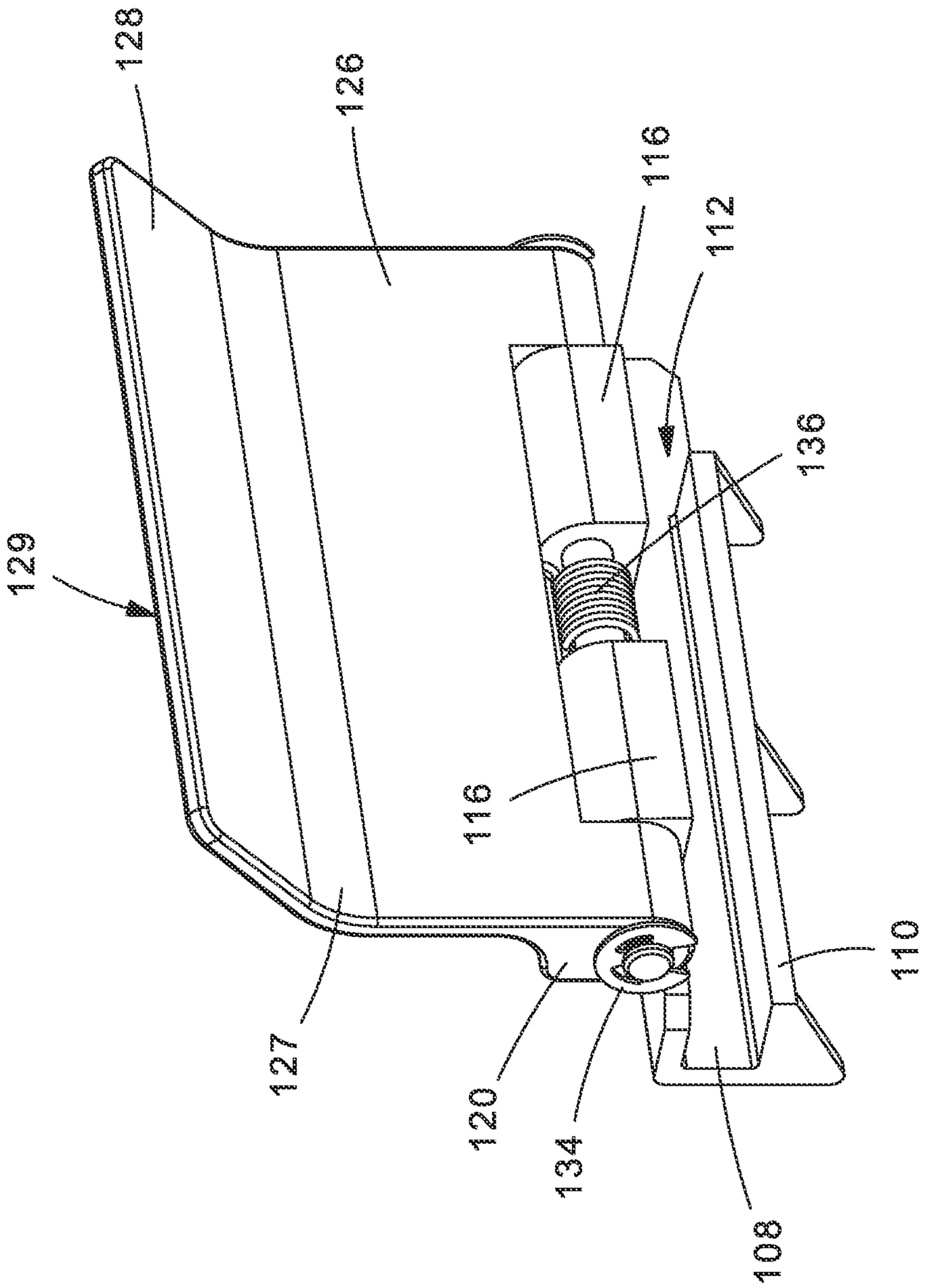


Fig. 3

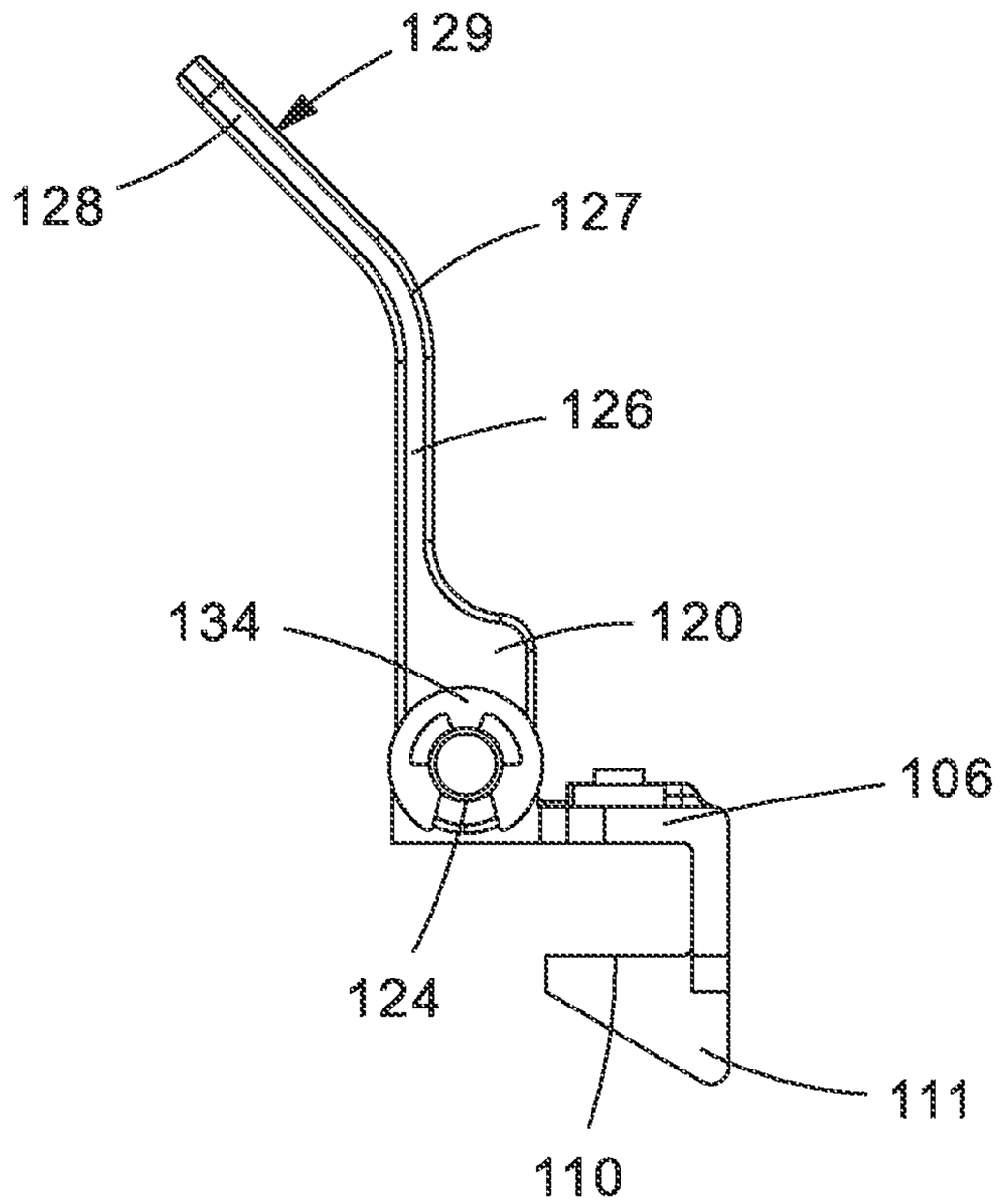


Fig.4

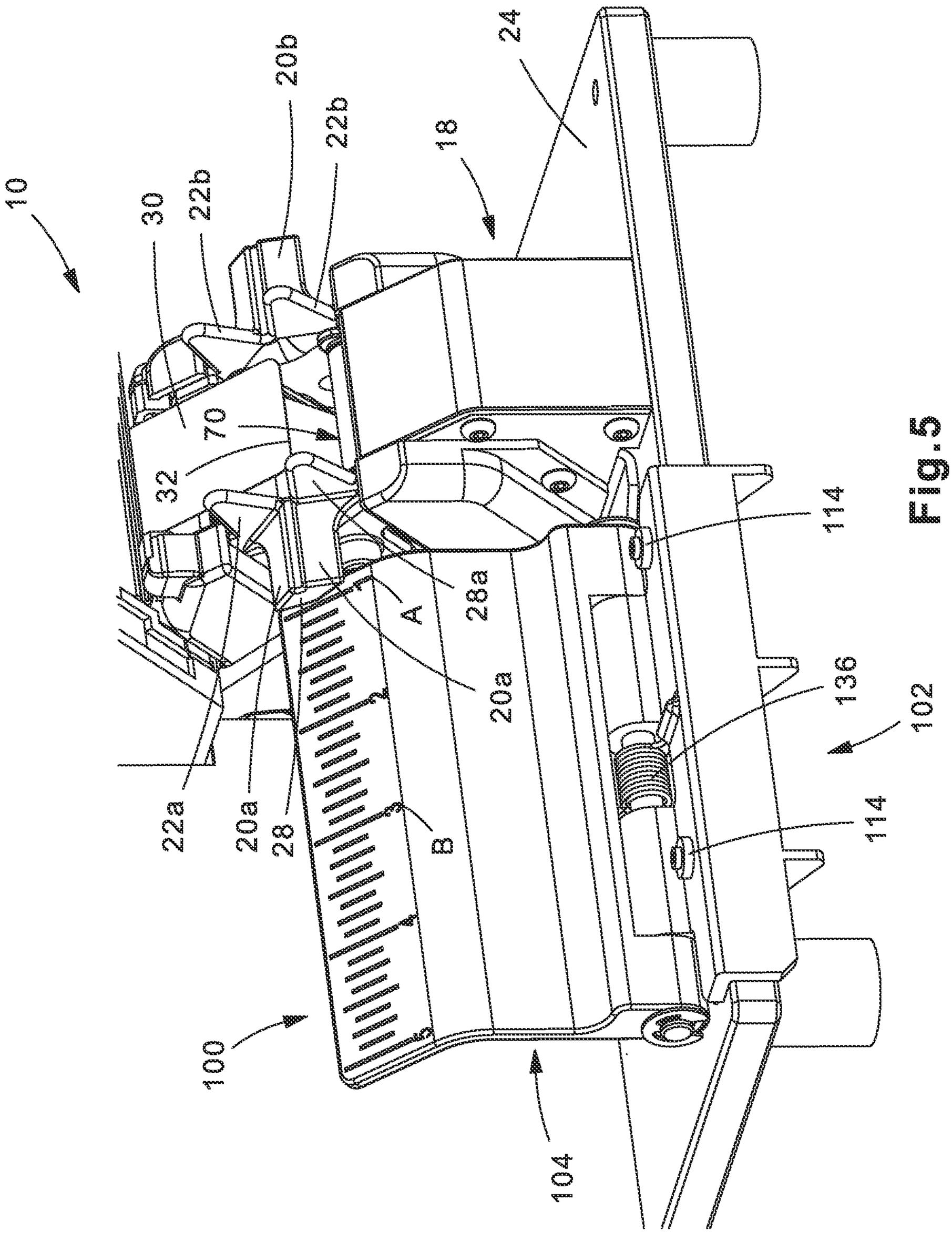

10
30
22b
20b
22b
18
24
70
32
28a
A
20a
22a
20a
28
B
114
136
102
114
100
104

Fig.5

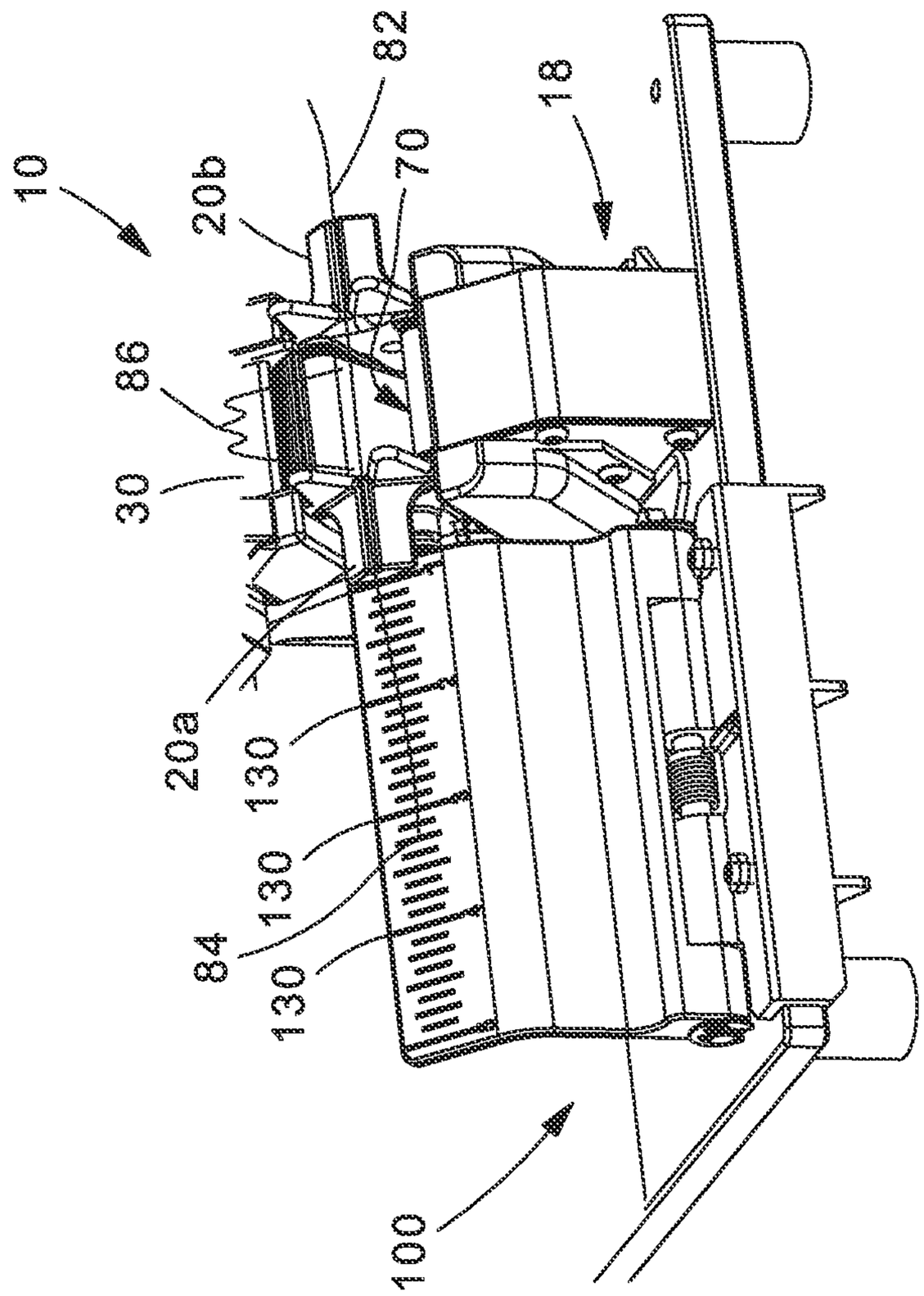


Fig. 6

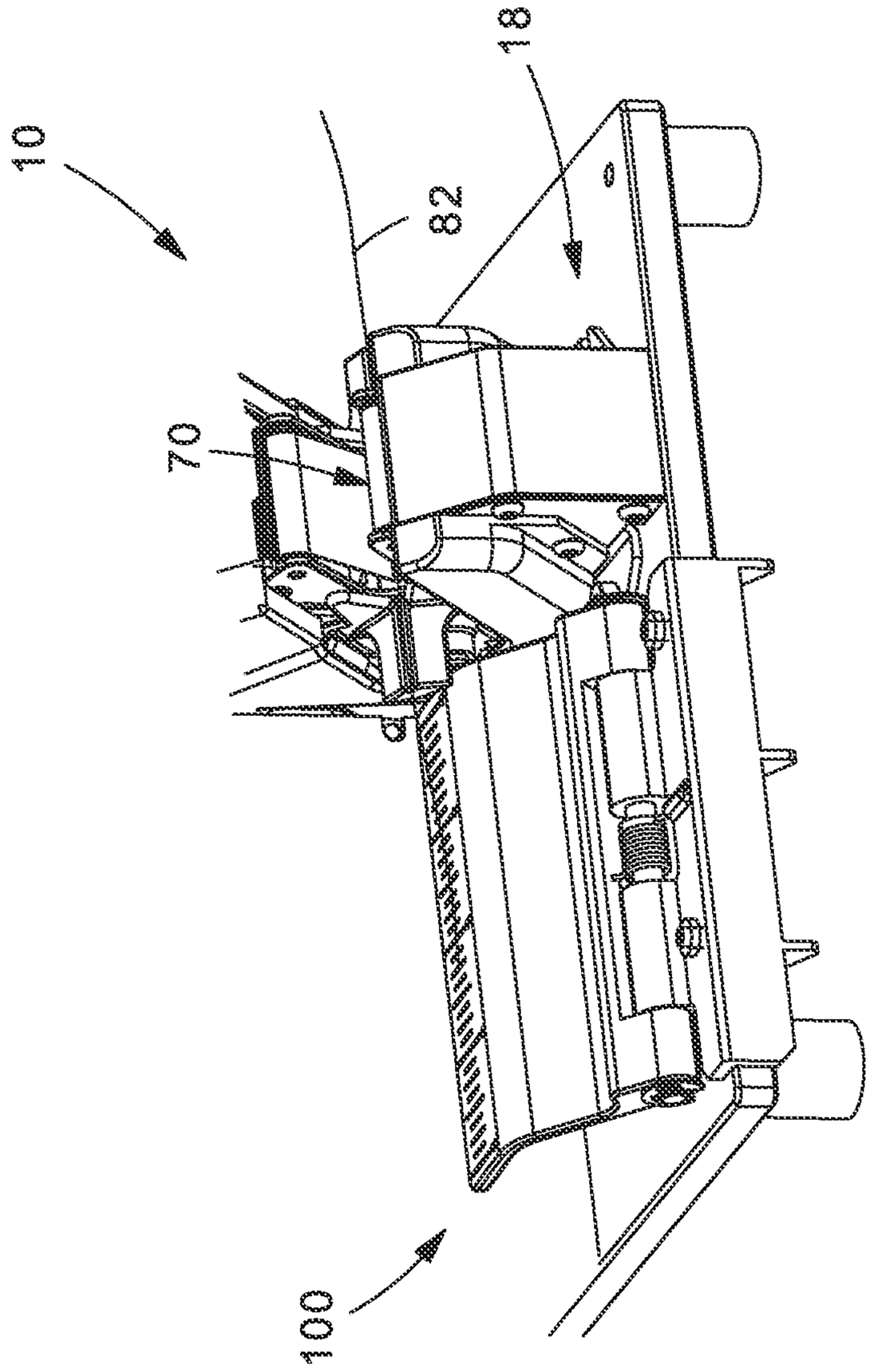


Fig. 7

ELONGATED OBJECT LABEL APPLICATOR GUIDE

CROSS-REFERENCE TO RELATED APPLICATION(S)

The application is a divisional of U.S. patent application Ser. No. 16/507,708, filed on Jul. 10, 2019, now U.S. Pat. No. 11,305,909, the entirety of which is hereby incorporated by reference herein.

TECHNICAL FIELD

The invention relates to a label applicator guide for use in labeling of elongated objects; more particularly, the invention relates to a guide for placing wrapping labels at a set location about wires, cables, and the like.

BACKGROUND

Labeling of wires and cables has traditionally been accomplished manually or by way of apparatuses requiring cumbersome, noisy hydraulic or high-pressure air lines. Typically, such machines grasp two points of a section of the wire and pull this section of wire taut. Once the wire is pulled taut, a label applicator or platform orbits around the taut section of wire to apply the label to the wire. This labeler must be capable of orbiting around the wire while applying an appropriate amount and type of pressure between the labeler and the wire. Because the wire or object to be wrapped may take on various shapes or sizes, this can complicate the design and operation of such wire labelers.

More recently, elongated object label applicators have been developed to solve the problems discussed above and other problems, and to provide advantages and aspects not provided by prior labeling devices of this type. One such elongated object label applicator is disclosed in U.S. patent application Ser. No. 16/279,298 assigned to Panduit Corp., which is incorporated by reference herein.

In using a label applicator such as the one disclosed in U.S. patent application Ser. No. 16/279,298, it is desirable to apply a label at a set or specific distance from an end of a wire, cable, and the like. In many instances, industry standards and requirements determine a set or measured distance from the end of the wire or cable in which the label is to be applied for consistency, clarity, and safety. Present label applicators, such as the Wraptor A6500 Wrap Printer Applicator manufactured by Brady Worldwide, Inc., include a fixed measurement indicia/indicator for measuring the location of the applied label from the end of the wire or cable. Fixed measurement indicia/indicators and other present measurement application lack the ability to place the wire or cable a set or measured distance from the end of the wire or cable and hold that measurement while simultaneously feeding the wire into the label applicator. Operators or users must measure by a visual estimate when feeding the wire or cable into the label applicator. Current label applicators lack the ability to safely and consistently label a wire or cable at a set or measured distance from the end of the wire or cable

The present invention is provided to solve the problems of fixed measurement indicia discussed above and other problems, and to provide advantages and aspects not provided in recent labeling applicators of this type. A full discussion of the features and advantages of the present invention is deferred to the following detailed description, which proceeds with reference to the accompanying drawings.

SUMMARY

In one example, according to the teachings of the present invention, an elongated object label applicator of the present invention may include a wrapping mechanism configured to apply a label to an elongated object and a label applicator guide including a base and a controller that is moveably secured to the base adjacent to the wrapping mechanism to guide the elongated object into the wrapping mechanism to apply the label.

In one example, the controller of the elongated object label applicator may be moveably secured to the base in a pivoting relationship through a first knuckle of the controller pivotably connected to a second knuckle of the base, with a pin extending through the first knuckle and second knuckle.

In one example, the base of the elongated object label applicator includes a top portion, side portion, and base portion in a C-shaped configuration forming a channel and the channel of the base mates to a base plate of the elongated object label applicator.

In one example, the label applicator guide of the elongated object label applicator includes indicia for measuring a length of the elongated object placed in the wrapping mechanism.

In one example, the controller of the elongated object label applicator pivots about the base to guide the elongated object into the wrapping mechanism.

In one example, the wrapping mechanism of the elongated object label applicator includes a wire guide configured to cradle the elongated object and direct the elongated object into a central portion of the wrapping mechanism, and the controller is configured to move in unison with the wire guide.

In one example, the controller of the elongated object label applicator includes a first support extending from the base and a second support extending from the first support such that the second support is planar with a wire guide of the wrapping mechanism.

In one example, the second support of the elongated object label applicator includes indicia for measuring a length of the elongated object placed in the wrapping mechanism.

In one example, according to the teachings of the present invention, a label applicator guide includes a base configured to be attached to an elongated object label applicator, and a controller including a first support extending from the base and a second support extending from the first support such that the second support is configured to be planar with a portion of the wrapping mechanism. The controller is moveably secured to the base through a first knuckle of the controller being pivotably connected to a second knuckle of the base, with a pin extending through the first knuckle and second knuckle.

In one example, the base of the label applicator guide includes a top portion, side portion, and base portion in a C-shaped configuration forming a channel and wherein the channel of the base is configured to mate to an elongated object label applicator.

In one example, the label applicator guide may also include indicia configured to measure a length of an elongated object placed in a wrapping mechanism.

In one example, according to the teachings of the present invention, a method of applying an adhesive label to an elongated object at a set distance comprising the steps of feeding a label from a source of labels to a wrapping mechanism of an elongated object label applicator; aligning an elongated object with indicia of a label applicator guide;

placing the elongated object within a wire guide of the wrapping mechanism; depressing the wire guide and label applicator guide to place the elongated object within the wrapping mechanism; and rotating a rotational device of the wrapping mechanism about an axis of rotation to apply the label.

BRIEF DESCRIPTION OF THE DRAWINGS

To understand the present invention, it will now be described by way of example, with reference to the accompanying drawings in which:

FIG. **1** is a perspective view of the present invention installed on an elongated label applicator;

FIG. **2** is a front perspective view of the present invention of a label applicator guide;

FIG. **3** is a rear perspective view of the label applicator guide of FIG. **2**;

FIG. **4** is a side view of the label applicator guide of FIG. **2**;

FIG. **5** is a partial perspective view of FIG. **1**, depicting the label applicator guide and elongated label applicator;

FIG. **6** is the label applicator guide and elongated label applicator of FIG. **5** with a measured wire or cable that is prepared for labeling; and

FIG. **7** is the label applicator guide and elongated label applicator of FIG. **5**, with the wire or cable inserted into the wrapping mechanism for labeling.

DETAILED DESCRIPTION

The disclosed label applicator guide solves or improves upon one or more of the noted disadvantages with presently known elongated object label applicators and current fixed measurement indicators. The present invention of a label applicator guide Provides for a consistent and safe application of a label to a wire or cable at a set or measured distance from the end of the wire or cable.

Turning to the drawings, FIG. **1** depicts an elongated object label applicator **10** with an attached a label applicator guide **100**.

As discussed above, label applicators **10** are apparatuses for applying printed labels to wires, cables or other elongated objects of varying diameters. Labels are wrapped around the objects without spinning the objects about their elongated longitudinal axis. The apparatuses are particularly useful for label types that require that the label be wrapped around an object using more than one revolution. Self-laminating labels are one such type, requiring a transparent end of the label to be wrapped over top of a printed region to provide protection to the printed content.

Label applicators **10** are comprised of several systems. These systems include a label applicator or printer **12**, a media roller or incoming conveyor **14**, a label peel-and-present mechanism **16**, and a wrapping mechanism **18**. The wrapping mechanism **18** includes a rotational device driven by a driver as further detailed in U.S. patent application Ser. No. 16/279,298. The wrapping mechanism **18** depicted in FIG. **1** further includes a first wire guide **20***a* and a second wire guide **20***b*. The wire guides **20***a*, **20***b* will be described further below. The present invention of the label applicator guide **100** is configured to be mounted to the label applicator to accurately apply a label at a set distance within the wrapping mechanism all in a uniform motion.

As depicted in FIG. **1**, the label applicator guide **100** is mounted directly adjacent the wrapping mechanism **18**. Referring to FIGS. **2-4**, the label applicator guide **100** includes a base **102** and a controller **104**. The base **102** includes a top **106**, side **108**, and bottom **110**. The top **106**, side **108**, and bottom **110** are in a C-shaped configuration and form a channel **112**. Set screws **114** may be found on the top **106** of the base **102**. The set screws **114** function to secure the base **102** to the label applicator **10**. The bottom **110** may include wings **111** as depicted in FIGS. **2-4**. The wings **111** are used to add strength to the bottom **110** and direct forces through the base **102** during tightening of the set screws **114**.

The base **102** further includes base knuckles **116** extending from the top **106** of the base **102**. The base knuckles **116** include an opening **118**. The base knuckles **116** and opening **118** allow for the base **102** to pivotably attach to the controller **104**.

As depicted in FIGS. **2-4**, the controller **104** includes a bottom portion **120**. The bottom portion **120** includes a wider profile (FIG. **4**) than the rest of the controller **104**. The wider profile of the bottom portion **120** accommodates guide knuckles **122**. The guide knuckles **122** include an opening **124**. The guide knuckles **122** and opening **124** allow for the controller **104** to hingedly or pivotably attached to the base **102**.

As depicted in FIG. **2**, a first support **126** extends from the base portion **120**. The first support **126** is generally planar with the base portion **120** and extends the width of the controller **104**. A bend **127** is connected to the first support **126**. A second support **128** is connected to the bend **127** and extends from the first support **126**. The second support **128** includes a front face **129**. As depicted in FIGS. **2-4**, the second support **128** extends away from the first support **126** at an angle. Alternatively, the second support **128** may also be planar with the first support **126**. The orientation of the second support **128** may be determined by the orientation of the wrapping mechanism **18**, such that the front face **129** of the second support **128** is planar with a portion of the wrapping mechanism **18**.

The second support **128** may include indicia or measurement markings **130** along the front face **129** as depicted in FIG. **2**. The indicia **130** of FIG. **2** are depicted in the units of inches, however, metric units or any other indicia indicating measurement units may be utilized. The indicia **130** of the label applicator guide **100** will be further described below.

As depicted in FIGS. **2-4**, the base **102** is hingedly connected to the controller **104** by a pin **132**. The pin **132** extends through the openings **118** in the base **102** and the openings **124** in the controller **104**. The pin **132** may be fastened in place using a fastener **134**, such as an E-clip, as depicted in FIGS. **2-4**. It is contemplated that other joining and fastening mechanisms may be implemented in place of the pin **124** and E-clip **134** to pivotably join the base **102** to the controller **104**.

A retention spring **136** is located between the base knuckles **116** and encompasses the pin **132** as is depicted in FIGS. **2** and **3**. The retention spring **136** includes a portion mounted to the base **102** and a portion mounted to the controller **104**. The retention spring **136** may be to keep the controller **104** in a vertically biased position as depicted in FIGS. **2-4**.

FIG. **5** depicts the label applicator guide **100** connected to the label applicator **10** with a label **30** presented for attachment to an elongated object. The base **102** of the label applicator guide **100** is mounted to a base plate **24** of the label applicator **10**. As depicted in FIG. **5**, the base plate **24** mounts within the channel **112** of the label applicator **100**. The set screws **114** are tightened to affix the label applicator guide **100** to the label applicator.

The label applicator guide **100** depicted in FIG. **5** is mounted onto the base plate **24** of the label applicator **10**, directly adjacent to the wrapping mechanism **18**. As referenced above, the wrapping mechanism **18** includes the first wire guide **20***a* and second wire guide **20***b*. The first wire guide **20***a* and second wire guide **20***b* are located on each side of a central portion **70** of the wrapping mechanism **18**. The first wire guide **20***a* and second wire guide **20***b* each include a guide post **22** (specifically guide posts **22***a*, **22***b*) and first and second finger grips **26***a*, **26***b*. The guide posts **22***a*, **22***b* extend up from the wire guides **20***a*, **20***b*. The guide posts **22***a*, **22***b* direct the wire or cable to the central portion **70** of the wrapping mechanism **18**. The finger grips **26***a*, **26***b* extend horizontally from the guide posts **22***a*, **22***b*. The finger grips **26***a*, **26***b* are configured to support the elongated object within the wrapping mechanism **18**.

The first wire guide **20***a* and second wire guide **20***b* act as sleds to guide the elongated object into the central portion **70** of the wrapping mechanism **18** for the label **30** to be applied by the wrapping mechanism 18 as described in U.S. patent application Ser. No. 16/279,298.

A free end **28** of the finger grip **26***a* may extend over an edge of the controller **104** and align with the indicia **130**. In this configuration, the retention spring **136** can act a force upon the controller **104** and retain the controller **104** against the finger grip **26***a*.

The label applicator guide **100**, as depicted in FIG. **5**, is mounted to the base plate **24** of the label applicator **10** such that the measurement of the indicia **130** correlate with the distance from the label **30** within the central portion **70** of the wrapping mechanism **18**. The measurement may be taken from any point on the label **30** within the central portion **70**. Typically, the measurement is taken from the edge of the label closest to the end of the elongated object **82**. Specifically, the indicia **130** marked as "1" noted at A in FIG. **5**, denotes a measured distance of 1 inch from the label **30**. Likewise, the indicia **130** marked as "3" noted at B denotes a measured distance of 3 inches from the label **30**. The indicia **130** depicted in the figures are in the units of inches, however, metric units or any other indicia indicating measurement units or lengths correlating to a length of the elongated object may be utilized.

FIGS. **6** and **7** depict the label applicator guide **100** connected to the label applicator **10** and including an elongated object **82**. The elongated object **82** includes a first end **84** positioned over the label applicator guide **100** and a labeling section **86** positioned between the wire guides **20***a*, **20***b*. The first end **84** is a termination end of the elongated object **82**, near where the label **30** is to be placed. The label section **86** is the portion of the elongated object **86** where the label **30** is intended to be placed.

FIG. **6** depicts the label section **86** the elongated object **82** positioned between the wire guides **20***a*, **20***b* of the wrapping mechanism **18** in preparation for applying the label **30**. The label **30** may be presented for labeling, with the adhesive side up as described in U.S. patent application Ser. No. 16/279,298. A leading edge **32** of the label **30** will extend past a center of the central portion **70** in the wrapping mechanism **18**.

The user may wish to apply the label **30** at a set distance when using the label applicator **10**. The user may align the end **84** of the elongated object **82** with the selected measurement indicia **130**, i.e. 1, 2, 3, etc. While holding the end **84** of the elongated object **82** at the selected indicia point, a user may place labeling section **86** of the elongated object **82** between the wire guides **20***a*, **20***b* of the wrapping mechanism **18** so that the surface of the object **82** first contacts an adhesive on the adhesive side of the label **86**.

The user may then depress the elongated object **82** into the wrapping mechanism **18** by depressing the wire guides **20***a*, **20***b* along with the elongated object **82** into the central portion **70**. The wire guides **20***a*, **20***b* will follow a linear path and travel into the wrapping mechanism **18**. As the wire guides **20***a*, **20***b* travel into the wrapping mechanism **18**, the first finger grip **26***a* of wire guide **20***a* will act on the controller **104** and cause the controller **104** to rotate with the linear movement of wire guide **20***a*. During this operation, the user may maintain control of the elongated object **82** against the label applicator guide **100** by holding the elongated object **82** against the controller **104** and wire guide **20***a* at the same time, while the wire guides **20***a*, **20***b*, move linearly into the central portion and at the same time the controller **104** pivots as a result of the wire guides **20***a*, **20***b*, linear movement.

FIG. **7** depicts the elongated object **82** within the central portion **70** of the wrapping mechanism for application of the label. Once the elongated object **82** is inserted fully into the central portion **70**, the rotational device (not shown) of the wrapping mechanism **18** orbits about the object **82** causing the label **30** (not viewable) to be pushed against the object **82** from all angles as detailed in U.S. patent application Ser. No. 16/279,298. Once labeling is completed, the user may remove the elongated object **82** from the wrapping mechanism **18**. The above process can be repeated for labeling additional elongated objects.

The illustrations of the embodiments described herein are intended to provide a general understanding of the structure of the various examples. The illustrations are not intended to serve as a complete description of all of the elements and features of apparatus and systems that utilize the structures or methods described herein. Many other embodiments may be apparent to those of skill in the art upon reviewing the disclosure. Other embodiments may be utilized and derived from the disclosure, such that structural and logical substitutions and changes may be made without departing from the scope of the disclosure. Additionally, the illustrations are merely representational and may not be drawn to scale. Certain proportions within the illustrations may be exaggerated, while other proportions may be minimized. Accordingly, the disclosure and the figures are to be regarded as illustrative rather than restrictive.

What is claimed is:

1. A method of applying an adhesive label to an elongated object at a set distance comprising the steps of:

feeding a label from a source of labels to a wrapping mechanism of an elongated object label applicator;

aligning an elongated object with indicia of a label applicator guide, wherein the indicia of the label applicator guide is configured for measuring a length of the elongated object placed in the wrapping mechanism;

placing the elongated object within a wire guide of the wrapping mechanism;

depressing the wire guide and label applicator guide to place the elongated object within the wrapping mechanism; and

rotating a rotational device of the wrapping mechanism about an axis of rotation to apply the label.

2. The method of claim **1**, wherein the label applicator guide includes a base and a controller configured to guide the elongated object into the wrapping mechanism to apply the label, wherein the controller is moveably secured to the

base adjacent to the wrapping mechanism configured to guide the elongated object into the wrapping mechanism to apply the label.

3. The method of claim **2**, wherein the controller is moveably secured to the base in a pivoting relationship through a first knuckle of the controller pivotably connected to a second knuckle of the base, with a pin extending through the first knuckle and second knuckle.

4. The method of claim **2**, wherein the base includes a top portion, side portion, and base portion in a C-shaped configuration forming a channel and wherein the channel of the base mates to a base plate of the elongated object label applicator.

5. The method of claim **2**, wherein the controller pivots about the base to guide the elongated object into the wrapping mechanism.

6. The method of claim **2**, wherein the wrapping mechanism includes a wire guide configured to cradle the elongated object and direct the elongated object into a central portion of the wrapping mechanism, and wherein the controller is configured to move in unison with the wire guide.

7. The method of claim **2**, wherein the controller includes a first support extending from the base and a second support extending from the first support such that the second support is planar with a wire guide of the wrapping mechanism.

8. The method of claim **7**, wherein the second support includes indicia for measuring a length of the elongated object placed in the wrapping mechanism.

* * * * *